

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 97-024
NPDES NO. CA0006246

WASTE DISCHARGE REQUIREMENTS FOR:

GENERAL ELECTRIC COMPANY
VALLECITOS NUCLEAR CENTER
PLEASANTON, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. General Electric Company, Vallecitos Nuclear Center (GE-VNC), hereinafter called the discharger, by application (Report of Waste Discharge) dated November 15, 1994, has applied for reissuance of National Pollutant Discharge Elimination System (NPDES) permit No. CA0006246.

FACILITY DESCRIPTION

2. The discharger is located in Vallecitos Valley about five miles southeasterly from the City of Pleasanton. The primary functions of the discharger are nuclear fuel research and production of radio-isotopes for medical and other uses. Facilities on site (see Attachment 1) include: a test reactor know as GETR, which has been shut down since October 27, 1977; a small graphite moderated nuclear test reactor known as NTR (for Neutron Radiography); laboratories for studies in radiochemistry, metallurgy, and nuclear fuels; machine shops; and administrative facilities. There are also two other nuclear reactors on site which have been shut down since the mid 1960's. The discharger has no plans for reactivating these two reactors or the GETR.
3. The USEPA and the Board have classified this discharger as a minor discharger.

PURPOSE OF ORDER

4. The discharger generates both sanitary and industrial wastewaters which are separately collected, treated and discharged. This NPDES permit regulates the discharges of effluent from both systems. The sanitary wastewater discharges are to land. Industrial effluent and storm water associated with industrial activity from the facility is discharged to Vallecitos Creek, a water of the United States. These discharges are currently governed by Waste Discharge Requirements specified in Order No. 90-058, adopted by the Board on May 18, 1990, and by Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities State Water Resources Control Board Order No. 91-13-DWQ (as amended by Order No. 92-12-DWQ, NPDES General Permit No. CAS0000001). The conditions of Order No. 90-058 were continued in effect past the expiration date, in accordance with NPDES regulations, by letter of the Executive Officer dated May 15, 1995.

DISCHARGE DESCRIPTION

5. The discharges regulated by this permit are described below and are based on information contained in the Report of Waste Discharge and recent self-monitoring reports. Figure 1 of this Order shows the Waste Treatment Facilities and Figure 2 is the Site Map.
- a. **Waste 001** consists of sanitary waste averaging about 2700 gallons per day (gal/day) which is treated in an Imhoff tank, filtered through sand beds, disinfected, and held briefly in a 60,000-gallon retention basin where it is tested for compliance with discharge limitations before it is discharged onto the discharger's property by sprinkler irrigation to land in the area shown on Figure 2. Sludges and septage are collected by a contractor and disposed to an off-site treatment plant. For the past 3 years, the South San Francisco Sewage Treatment Facility received these wastes.
- b. **Waste 002** is the industrial wastewater effluent and consists primarily of once-through non-contact cooling water from the NTR, the waste evaporator, machine shop, and laboratory equipment. It also includes storm water which infiltrates into the collection system. The wastewater is stored in either one of three 60,000-gallon retention basins, pH adjusted, tested for compliance with permit limits and the Nuclear Regulatory Commission's (NRC) radioactivity discharge limits before it is discharged.

Waste 002 is discharged by gravity to an unnamed earthen drainage ditch tributary to Vallecitos Creek (lat. 37°31'00", long. 121°48'30"). Vallecitos Creek is tributary to Arroyo de la Laguna which is tributary to Alameda Creek approximately 2 miles down stream. The discharge is intermittent and has averaged 23,600 gal/day with a maximum of 50,000 gal/day.

Additionally, this permit allows for Waste 002 to be discharged to an on-site lake shown in Figure 2. The discharger maintains this lake for aesthetic enjoyment. It is a spring-fed lake formerly used as a stock watering pond when the property was farmland. The discharger placed some fish in the lake. Waste 002 is used to replenish the lake to keep the fish alive. The Department of Fish and Game finds this practice acceptable. An average of 5950 gal/day has been used for this purpose. Waste 002 may also be employed for other non-potable uses on-site if it complies with effluent limits.

The general quality of Waste 002 based on data presented in the application and past three years of self-monitoring reports is as follows:

	<u>Average</u>	<u>Minimum</u>	<u>Maximum</u>
Chemical Oxygen Demand, mg/l	<20	--	--
Total Suspended Solids, mg/l	<3	<1	140
Total Dissolved Solids, mg/l	78	<1	230
Oil and Grease, mg/l	<5	<5	24
pH (standard units)	7.5	6.6	8.5
Temperature, F	61	48	90

- c. **Waste 003** consists of storm water runoff from 140 acres of property associated with industrial activities. The property is primarily unpaved with approximately 12 acres of paved surface. The developed areas contributing runoff include parking lots, roadways, building

roofs and general yard areas where unused equipment and waste materials may be stored. Waste materials in these yards are contained in sealed transportation containers which prevents contamination of storm water runoff from the areas. Waste 003 may also include minor amounts of air condition condensate. Waste 003 drains the site via two main ditches which joins and is discharged to an unnamed ditch tributary to Vallecitos Creek at generally the same location as Waste 002 (lat. 37°31'00", long. 121°48'30"). The general quality of this discharge based on data presented in the application is as follows:

	<u>Average</u>	<u>Minimum</u>	<u>Maximum</u>
Total Suspended Solids, mg/l	173	--	420
Oil and Grease, mg/l	<0.5	--	--
pH (standard units)	--	6.9	7.0

6. The discharger voluntarily ceased discharge of industrial wastewaters containing site generated radioactive substances to surface waters in May 1980. The discharger also voluntarily ceased discharge of all industrial or process related wastewater, with the exception of once-through cooling water described above, as of March 1990.

Compliance History

7. The discharger has not reported any discharges of sanitary wastewater (Waste 001) to any area outside the permitted disposal area. No recent monitoring data is available on this discharge however. This Order will require periodic monitoring of Waste 001 to ensure compliance with the numeric limits established herein.
8. Order No. 90-058 relaxed the industrial wastewater (Waste 002) effluent limits for total suspended solids and oil and grease from the previous permit issued in 1984. Order No. 90-058 tightened slightly the effluent limits for copper and mercury, and added limits for other toxic metal pollutants in accordance with the Basin Plan. These toxic pollutants include nickel, lead, and zinc. In the past 5 years, the discharger has occasionally violated the effluent limits for nickel, lead, and acute toxicity in Waste 002. The cause of the lead and nickel appears to have been a dormant wastewater line that was reactivated in 1991. Upon discovery, the line was capped. Some of the acute toxicity observed during that time may have been attributable to this source. There has only been one minor violation of the limit for lead since this incident.
9. Waste 002 continues to occasionally exceed the limit for zinc. The discharger submitted a report with the permit application which indicates that the most probable source of zinc is the facility's plumbing system which includes galvanized piping. Below are the violations in the past 3 years:

<u>Parameter</u>	<u>Monitoring Frequency</u>	<u>Order No. 90-058 Limit</u>	<u>Sample Result</u>	<u>Month/Year</u>
Zinc	Monthly	58 µg/l	180 µg/l	November 1993
			80 µg/l	February 1994
			67 µg/l	July 1994
			62 µg/l	June 1995
			105 µg/l	January 1996

This Order amends the effluent limit for zinc from that specified in Order No. 90-058 to a level which is protective of water quality considering the site specific conditions of the receiving waters for this discharge as allowed in the Basin Plan. The basis is described in detail in a finding below.

APPLICABLE PLANS, POLICIES AND REGULATIONS

10. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board (State Board) and the Office of Administrative Law on July 20 and November 13, respectively, of 1995. A summary of regulatory provisions is contained in Title 23 of the California Code of Regulations at Section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface and ground waters.
11. Effluent limitations and toxic effluent standards established pursuant to Sections 208(b), 301, 304, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharge.

BENEFICIAL USES

12. The beneficial uses of Alameda Creek, Arroyo de la Laguna, Vallecitos Creek and contiguous waters are:
 - a. Water contact and non-contact recreation
 - b. Wildlife habitat
 - c. Cold and warm freshwater habitat
 - d. Fish spawning and migration
 - e. Agricultural supply
 - f. Groundwater recharge

BASIS FOR REQUIREMENTS

13. Effluent and receiving water limitations in this Order are based on the plans, policies, and water quality objectives and criteria of the Basin Plan, *Quality Criteria for Water* (EPA/5-86-001, 1986; Gold Book), applicable Federal Regulations (40 CFR Parts 122 through 131), the National Toxics Rule (57 FR 60848, 22 December 1992; NTR), and best professional judgement.
14. Effluent limitation guidelines requiring the application of best available technology economically achievable (BAT) for this point source category have not been promulgated by the USEPA. The limitations specified in this Order are considered to be those attainable by BAT, in the judgement of the Board.
15. The establishment of many of the chemical specific limitations depend upon the salinity characteristics of the receiving waters. The receiving waters for this discharge are freshwater in character.

Zinc

16. The discharger has had occasional violations of the 58 µg/l limit for zinc specified in the previous permit. The discharger attributes the cause to corrosion of the facility's plumbing system as described in the Finding 9 above. The discharger cannot achieve compliance without installing some form of treatment system and requested the Board to establish a limit for zinc based on site specific conditions of the receiving water. Considering the source of the zinc, the mass loading from this discharger, and the environmental benefit from this discharge (discussed in the findings below), an evaluation to determine a limit that is equally protective of water quality is appropriate.
17. The 58 µg/l limit for zinc specified in Order No. 90-058 was based on Table 4-1 of the 1986 Basin Plan which was in turn based on the 24-hour average water quality criterion for salt waters.
18. The current Basin Plan's fresh water quality objective for zinc is dependent on hardness. During the dry weather period, the primary source of water to Vallecitos Creek in the vicinity of the discharger's outfall is groundwater seepages and springs and the discharger's effluent. Data from groundwater wells in a nearby area show hardness ranging from over 100 mg/l up to 1,000 mg/l as calcium carbonate. Analysis of water in Alameda Creek during the summer shows the hardness above 100 mg/l as calcium carbonate. Based on these data, a zinc limit based conservatively on 100 mg/l, which is the lower end of the range of hardness, will be protective of receiving waters. At a hardness of 100 mg/l, the 4-day average objective for zinc is 106 µg/l. Therefore, this Order specifies a daily maximum limit of 106 µg/l which is believe to be protective of the most sensitive beneficial use of the receiving water: fresh water aquatic habitat.
19. The daily maximum limit of 106 µg/l for zinc specified in this permit is less stringent than that contained in the prior permit. Relaxation of the limitation is permissible pursuant to the antibacksliding provisions, Section 402(o)(1), of the Clean Water Act because a specific exception applies to this discharge. The exception is contained in Section 303(d)(4)(B) of the Clean Water Act. The discharge will comply with antidegradation requirements because its quality and quantity (flow rate, concentration, and mass of zinc) will not differ substantially from current conditions. Relaxation of the effluent limitation will not result in violation of any applicable effluent limitation guideline or water quality standard.

Effluent Limits Deleted from Previous Permit

20. The effluent limits for arsenic, cadmium, nickel, and silver in Waste 002 (industrial wastewater) specified in Order No. 90-058 have been deleted from the list of effluent limits of this Order. In general, based on the nature of the discharge, and discharge data for the past 5 years, this discharge does not pose a reasonable potential to cause or contribute to an excursion above any numeric or narrative water quality objective. The specific basis for the deletion of each constituent is described in the findings below.
21. The discharger certifies that no activities or conditions exist which would contribute to the addition of arsenic and cadmium to Waste 002. The previous permit reference the discharger's plans for changing the waste stream from once-through cooling to evaporative cooling towers. The discharger has cancelled these plans. The reason that a limit for these constituents were added to the previous permit may have been because of the plans for the evaporative cooling towers. The

previous permit did not require monitoring for arsenic and cadmium in Waste 002. A special sampling conducted by the discharger in December 1996 show low levels: arsenic at 1.7, 1.4, and <0.6 µg/l; cadmium at 0.15, 0.63 and 0.08 µg/l. Based on an estimated coefficient of variation of 0.6 recommended in the TSD for small data sets, the statistically determined maximum expected concentration for arsenic is 9.5 µg/l, and for cadmium is 3.5 µg/l at a 99% confidence level. The value of 9.5 µg/l for arsenic is less than the previous limit of 20 µg/l and less than the Basin Plan objective of 190 µg/l (4-day average). The value of 3.5 µg/l for cadmium is less than the previous limit of 10 µg/l and the objective of 3.9 µg/l (at a hardness of 100 mg/l as CaCO₃). In summary, based on these data and the methodology described in the TSD, there is no reasonable potential for this discharge to contribute to an exceedance of the objective for arsenic and cadmium. Deletion is permissible pursuant to antibacksliding provision in the Clean Water Act section 404(o)(2)(A). There has been a material alteration in the facility (cancellation of plans for evaporative cooling towers) which justifies deletion of these limits.

22. The discharger certifies that no activities or conditions exist which would contribute to the addition of nickel to Waste 002. The previous permit reference the discharger's plans for changing the waste stream from once-through cooling to evaporative cooling towers. One reason that nickel may have been added to the previous permit was the plans for the evaporative cooling towers. The discharger has cancelled these plans. Also, the discharger permanently blocked off a wastewater line in 1991 that was a source of nickel. Discharge data from 1992 to the present show non-detect levels (<5 µg/l) in 52 out of 57 samples. The highest level measured is 6.7 µg/l. These data show that the discharge is consistently below the previous limit of 7.1 µg/l and below the Basin Plan objective of 158 µg/l (4-day average at a hardness of 100 mg/l as CaCO₃). Based on these data, there is no reasonable potential for this discharge to contribute to an exceedance of the objective for nickel. Deletion is permissible pursuant to antibacksliding provision in the Clean Water Act section 404(o)(2)(A). There has been a material alteration in the facility (cancellation of plans for evaporative cooling towers and elimination of a wastewater source in 1991) which justifies deletion of this limit.
23. The discharger has certified that the source of silver (rinse water from the photograph laboratory) was eliminated in 1990. Discharge data for the past six years has verified this with non-detects (<1 µg/l) in all except two samples. The two samples results were 1.7 and 2.0 µg/l which are below the previous limit of 2.3 µg/l and below the Basin Plan objective of 4.1 µg/l (instantaneous maximum at a hardness of 100 mg/l as CaCO₃). Deletion of the limit is permissible pursuant to antibacksliding provision in the Clean Water Act section 404(o)(2)(A). There has been a material alteration in the facility (rinse water from photography lab has been terminated since 1990) which justifies deletion of this limit.

Shallow Water Discharge Exception

24. The Basin Plan prohibits discharge of any wastewater which has particular characteristics of concern to beneficial uses into non-tidal waters or at any point at which it does not receive an initial dilution of at least 10:1 or into any non-tidal water or deadend slough or similar confined waters, or its immediate tributaries.
25. The Basin Plan further states with respect to Alameda Creek watershed discharges, that it shall be prohibited to discharge any wastewater which has particular characteristics of concern to beneficial

uses to Alameda Creek above Niles when no natural flow occurs. The threat of a buildup of dissolved solids, stable organics and other pollutants in the groundwater of the Niles Cone area, recharged with waters of Alameda Creek, is most critical in the dry weather period when wastewater could account for much of the water percolating to the basin.

26. The Basin Plan provides that exceptions to the discharge prohibitions will be considered for discharges where:
 - a. An inordinate burden would be placed on the discharger relative to beneficial uses protected and an equivalent level of environmental protection can be achieved by alternate means, such as an alternative discharge site, a higher level of treatment, and/or improved treatment reliability; or
 - b. A discharger is approved as a part of a reclamation project; or
 - c. It can be demonstrated that net environmental benefits will be derived as a result of the discharge.
27. The discharger is presently governed by Order No. 90-058 in which the Board continued a previously granted exemption from the Basin Plan prohibitions against dry weather discharges to Alameda Creek watershed above Niles, and permitted a year round discharge to Vallecitos Creek. One of the stated basis for continuing the exemption was the discharger's documentation that the discharge has consistently met Board effluent limits for certain pollutants and other characteristics of concern and Basin Plan surface water quality objectives for the Alameda Creek watershed. This situation continues to hold true with the exception of the effluent limit exceedances described in Findings 8 and 9. These exceedance have either been eliminated by the discharger or addressed by amendment of the effluent limit as described in the above findings.
28. Order No. 90-058 also determined that the Waste 002 discharge was of better quality than the neighboring well water and surface streams which is used to recharge the Alameda Creek watershed. This condition continues to hold true.
29. The Department of Fish and Game maintain their concurrence that there are positive net environmental benefits to dry weather discharge from the discharger which meet the permit effluent limits.
30. Based on the above findings, the Board finds that the discharge of Waste 002 as permitted in these requirements, does not contain particular characteristics of concern to beneficial uses of the Alameda Creek watershed above Niles when no natural flow occurs, and net environmental benefits are present from the discharge. Therefore, the Board grants an exception to the Basin Plan prohibitions noted in Findings 24 and 25 above on the condition that the discharger continue to implement, and annually review and update a Best Management Practice Plan, and a Storm Water Pollution Prevention Plan for the prevention of release of pollutants to State waters from ancillary activities, including material storage areas, plant site runoff, in-plant transfer, process and material handling areas, loading and unloading operations, and waste treatment/containment areas.

Radioactive Substances

31. The discharger voluntarily ceased discharge of industrial wastewaters containing site generated radioactive substances to surface waters in May 1980. Due to the shut down of the three reactors noted in Finding 3 above, the plutonium fuel facility was eliminated in 1980, and the production of strontium sources ceased prior to 1980. The discharger does not discharge waste evaporator distillate to the industrial wastewater system, so the potential source of tritium and other radioactive substances have been eliminated from the industrial wastewater stream (Waste 002).
32. All four of the discharger's reactors have a license from the Nuclear Regulatory Commission (NRC). Although the three inactive reactors, namely the GETR, EVESR, and VBWR will not be restarted, the reactors are licensed for possession. The discharger's only active nuclear test reactor, the NTR, was relicensed on December 28, 1984, and its expiration date will be October 31, 1997.
33. Specific radiological effluent and receiving water limits are not included in this Order because the NRC and the California Department of Health Services (DHS) have primary responsibility for regulation of such constituents in wastewater discharges pursuant to the Code of Federal Regulations-Energy, Title 10, Chapter 1, Part 20 et seq. and in the California Code of Regulation Titles 17 and 22 (Regulations for Radiation Control and for Domestic Water Quality and Monitoring, respectively).
34. The Basin Plan provides that ground and surface waters designated for domestic or municipal drinking water supply, such as the Alameda Creek watershed, shall not contain concentrations of radionuclides in excess of the following objectives: 5 pCi/l (pico-curies per liter) of combined Radium-226 and Radium-228, 15 pCi/l of Gross Alpha Particle Activity, 20,000 pCi/l of Tritium, 8 pCi/l of Strontium-90, and 50 pCi/l of Gross Beta Particle Activity. These objectives conform with the Maximum Contaminant Levels contained in Title 22 of the California Code of Regulations administered by the DHS and the Primary Drinking water limits specified by the United States Environmental Agency.

CEQA AND PUBLIC NOTICE OF ACTION

35. The reissuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21000 of Division 13) of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.
36. The Board has notified the discharger and interested agencies and persons of its intent to reissue waste discharge requirements, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
37. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Federal Water Pollution Control Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Sanitary Wastewater (Waste 001)

- a. No sanitary wastewater shall be allowed to escape the designated disposal area, either by surface flow or airborne spray.
- b. No sanitary wastewater shall be discharged to any area other than the designated disposal area as shown in Figure 1.
- c. The discharge of sanitary wastewater to spray areas shall cease immediately when any of the specifications or prohibitions are violated.
- d. There shall be no bypass or overflow of waste to waters of the State from the wastewater collection, treatment, or disposal system.

2. Industrial Wastewater (Waste 002)

- a. No industrial wastewater shall be discharged to the sanitary wastewater, spray disposal area.
- b. The discharge of all process wastes, washdown water, solvents, oils, other products of petroleum origin, organic and inorganic chemicals to State waters is prohibited.
- c. The discharge of all conservative toxic and deleterious substances above those levels which can be achieved by a program acceptable to the Board is prohibited.

B. EFFLUENT LIMITATIONS

1. Sanitary Wastewater (Waste 001)

- a. The discharge of Waste 001 shall not cause degradation of groundwater suitable for domestic use or cause an increase in any quality parameter that would make groundwater unsuitable for irrigation use.
- b. Waste 001 as discharged shall consist only of disinfected, primary treated sanitary wastewater and shall meet the following quality limits at all times:

Coliform Organisms	The median MPN shall not exceed 23 coliform organisms per 100 milliliters of sample, as determined from the bacteriological results of the last seven (7) days for which analyses have been completed, and the number of coliform organisms shall not exceed 240 per 100 milliliters in any two (2) consecutive samples.
pH	6.0 minimum, 9.0 maximum

- c. The public shall be effectively excluded from the sanitary wastewater (Waste 001) disposal area. This area shall be clearly identified with posted notices to the public.

2. Industrial Wastewater Effluent Limitations

- a. The discharge of Waste 002 containing constituents in excess of the following concentration limits is prohibited:

<u>Constituent</u>	<u>Units</u>	<u>Average</u>		<u>Daily Maximum</u>
		<u>Monthly</u>	<u>Weekly</u>	
Settleable Solids	ml/l-hr	0.1		0.2
Suspended Solids	mg/l	30	45	
Oil and Grease	mg/l	10		20
Temperature	deg. F			90
Copper	μg/l			11.8
Hexavalent Chromium ^[1]	μg/l			11
Lead	μg/l			3.2
Mercury	μg/l			0.012
Zinc	μg/l			106

^[1] The discharger may at their option meet the limit for hexavalent chromium as total chromium.

- b. Waste 002 shall not be discharged with a **pH** outside the range of 6.5 to 8.5.
- c. Waste 002 shall meet the following limitations for **Total Dissolved Solids** and **Chlorides**:

	<u>TDS</u>	<u>Chlorides</u>
90-day arithmetic mean	250 mg/l	60 mg/l
90-day, 90th percentile	360 mg/l	100 mg/l
Daily maximum	500 mg/l	250 mg/l

- d. Waste 002 as discharged shall meet the following **acute toxicity limitation**:

The survival of test fishes^[1] in 96-hour static-renewal bioassays of Waste 002 as discharged shall be a three sample median value^[2] of not less than 90 percent survival, and a single sample value of not less than 70 percent survival.

^[1] Test fishes as specified by the Executive Officer in the Self-Monitoring Program

^[2] Any bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if one or more of the past two bioassay tests show less than 90 percent survival.

C. RECEIVING WATER LIMITATIONS

1. The discharge of wastes shall not cause the following conditions to exist in waters of the State at any place at levels that cause nuisance or adversely affect beneficial uses:
 - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
 - b. Bottom deposits or aquatic growths;
 - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;
 - e. Toxic or deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:
 - a. Dissolved oxygen: 7.0 mg/l minimum. The median dissolved oxygen concentrations for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation. When natural factors cause less concentration(s) than specified above, then discharge shall not cause further reduction in the concentration of dissolved oxygen.
 - b. Dissolved sulfide: 0.1 mg/l maximum.
 - c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
 - d. Un-ionized ammonia (as N): 0.025 mg/l Annual Median, and 0.4 mg/l Maximum at any time.
3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 or the Federal Water Pollution Control Act or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

D. PROVISIONS

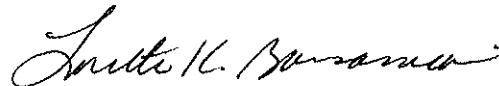
1. **TRE for Acute Toxicity:** If there is a violation of the acute toxicity effluent limitation, the discharger shall conduct a toxicity reduction evaluation (TRE), which shall initially involve a toxicity identification evaluation (TIE). The TIE shall be in accordance with a work plan acceptable to the Executive Officer. The TIE shall be initiated within 30 days of the date of violation. The objective of the TIE shall be to identify the chemical or combination of chemicals that are causing the observed toxicity. Every effort using currently available TIE methodologies shall be employed by the discharger. As toxic constituents are identified or characterized, the discharger shall continue the TRE by determining the source(s) of the toxic constituent(s) and evaluating alternative strategies for reducing or eliminating the constituent(s) from the discharge. All reasonable steps shall be taken to reduce toxicity to the required level. The Board recognizes that identification of causes of toxicity may not be successful in all cases. Consideration of enforcement action by the Board will be based in part on the discharger's actions in identifying and reducing sources of toxicity.
2. **Storm Water Pollution Prevention Plan:** The discharger shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) acceptable to the Executive Officer. The SWPPP shall cover the entire facility owned and operated by the discharger. It shall describe the management and handling of storm water runoff from the facility, and measures taken to prevent contamination of storm water or discharge of pollutants with the storm water. As part of the SWPPP, the discharger shall 1) identify on a map of appropriate scale the areas which contribute runoff to the permitted discharge points, 2) describe the activities on each area and the potential for contamination of the runoff, and 3) address the feasibility for containment and/or treatment of the storm water. The discharger shall submit the SWPPP by July 1, 1997.

The discharger shall evaluate and update as necessary the SWPPP by July 1 of each year, or sooner if there is a change in the operation of the facility which may substantially affect the quality of the storm water discharged from the facility. The annual update shall be timed with the preparation and submittal of the annual storm water report required in the Self-Monitoring Program. The discharger shall submit revisions to the Executive Officer by September 1 of each year.

3. **Standard Provisions:** This Order includes all items of the attached "Standard Provisions, Reporting Requirements" dated August 1993. In part, these Standard Provisions require submittal within 90 days of adoption of this Order, of reports on Safeguards to Electric Power Failure and Spill Prevention and Contingency Plan.
4. **Contingency Plan:** The discharger shall review and update annually its Contingency Plan required by Board Resolution No. 74-10. The discharge of pollutants in violation of this Order where the discharger has failed to develop and/or implement a contingency plan will be a basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.
5. **Best Management Practices Plan:** The discharger shall review and update annually its Best Management Practices (BMP) Plan for the prevention of discharge of toxic pollutants from the facility.

6. **Self-Monitoring Program:** The discharger shall conduct monitoring in accordance with the attached Self-Monitoring Program as adopted by the Board. The Self-Monitoring Program may be amended by the Executive Officer pursuant to USEPA regulations 40 CFR 122.62, 122.63, and 124.5.
7. **Signatory and Certification:** All applications, reports, or information submitted to the Board shall be signed and certified pursuant to USEPA regulations 40 CFR 122.41(k).
8. The discharger shall not increase significantly the discharge volumes and rates, and the concentration and mass of zinc in the discharges.
9. **Notification on Changes:** Pursuant to USEPA regulations, 40 CFR 122.41(a), the discharger shall notify the Board as soon as it knows or has reason to believe 1) that they have begun or expect to begin, use or manufacture of a toxic pollutant not reported in the permit application, or 2) a discharge of a toxic pollutant not limited by this permit has occurred, or will occur, in concentrations that exceed the specified limits in 40 CFR 122.42(a).
10. **Effective Date of Permit:** This Order shall serve as National Pollutant Discharge Elimination System permits pursuant to Section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall become effective on the date of adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.
11. **Permit Expiration:** This Order expires on February 19, 2002. The discharger must file a Report of Waste Discharge in accordance with Title 23 of the California Code of Regulations, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.
12. **Rescission of Previous Order:** This Order supersedes the requirements of Order No. 90-058. Order No. 90-058 is hereby rescinded.

I, Loretta K. Barsamian, Executive Officer do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on February 19, 1997.


LORETTA K. BARSAMIAN
Executive Officer

Attachments:

Figure 1 - Waste Treatment Facility
Figure 2 - Site Map
Resolution No. 74-10
Standard Provisions & Reporting Requirements, August 1993
Self-Monitoring Program

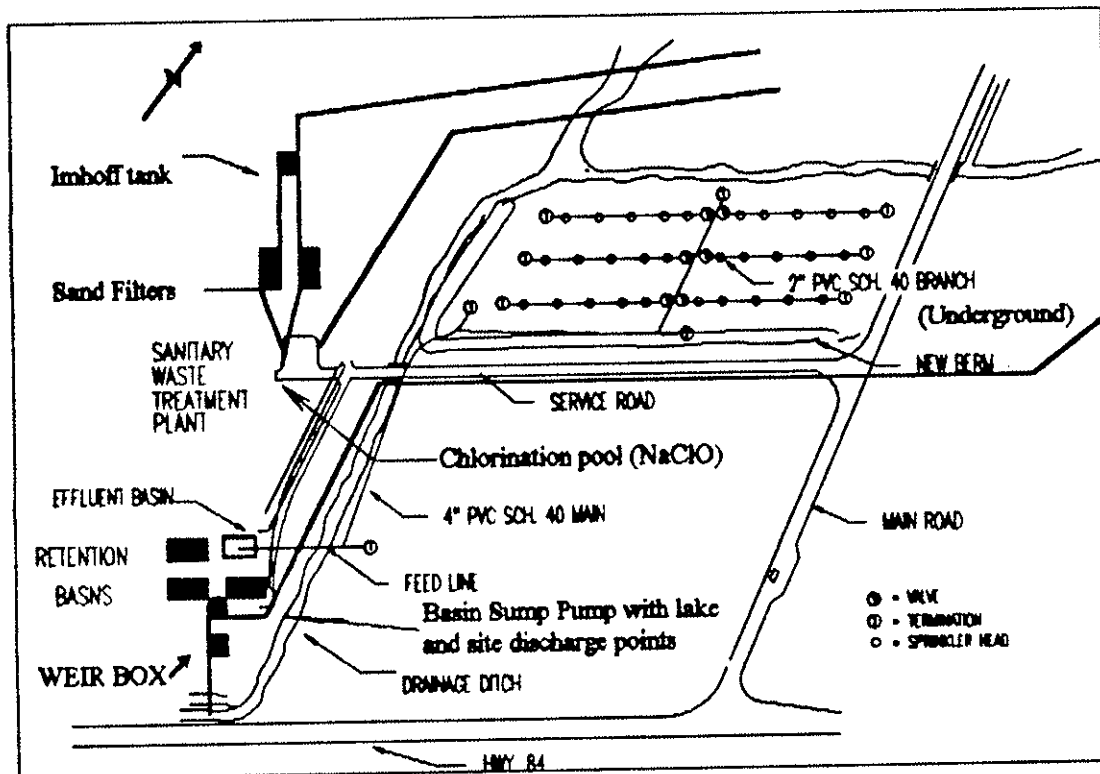
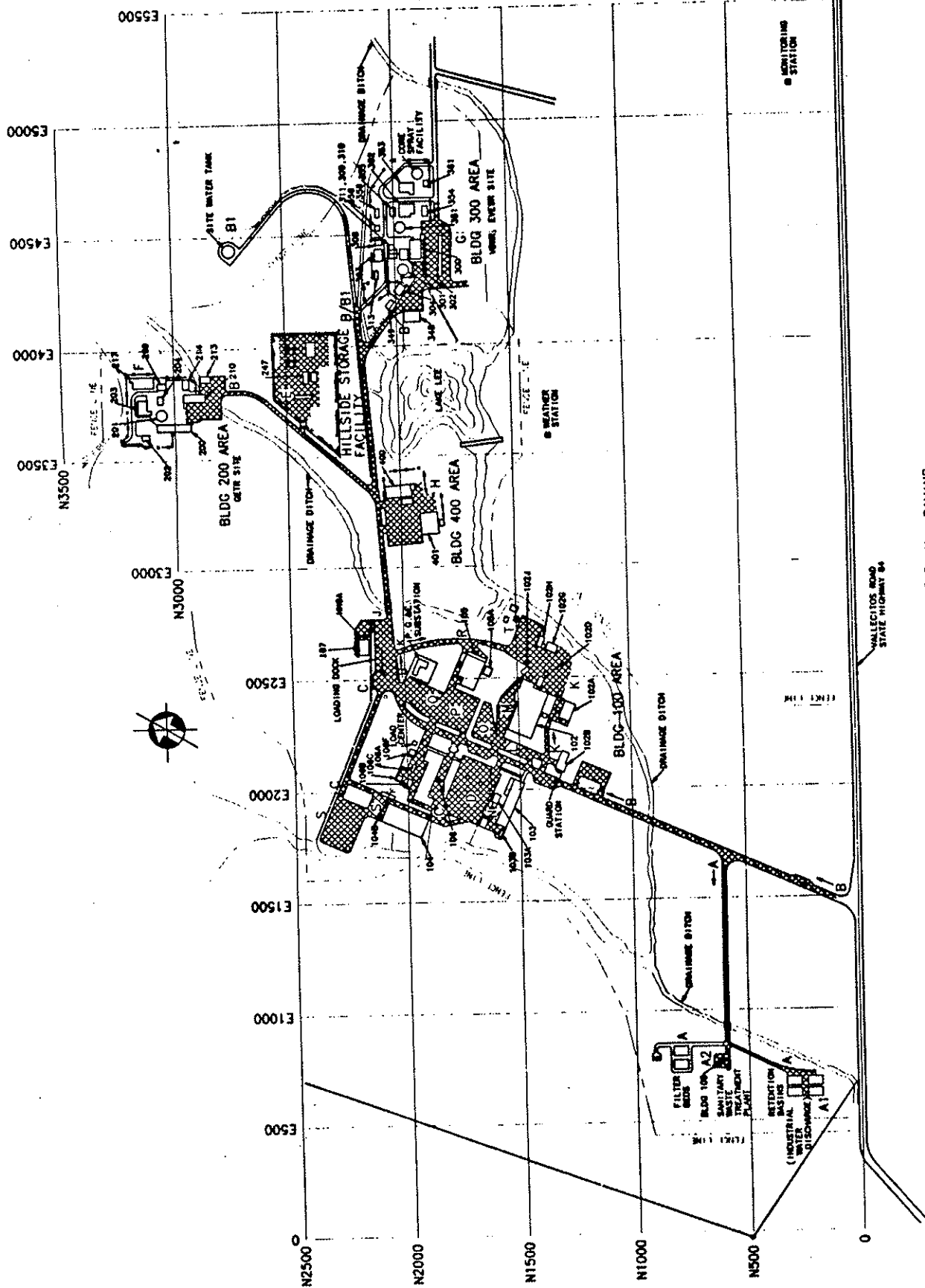


Figure 1 Waste Treatment Facility

Rev. 8/03/1995



VNC SITE PLAN - PAVING

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

GENERAL ELECTRIC COMPANY
VALLECITOS NUCLEAR CENTER
ALAMEDA COUNTY

NPDES NO. CA0006246
ORDER NO. 97-024

CONSISTS OF

PART A dated August 1993, and

PART B Adopted: February 19, 1997
Effective April 1, 1997

PART B

DESCRIPTION OF SAMPLING STATIONS AND SCHEDULE OF SAMPLING, ANALYSIS & OBSERVATIONS FOR GENERAL ELECTRIC COMPANY VALLECITOS NUCLEAR CENTER NPDES NO. CA0006246

I. Description of Sampling Stations

A. EFFLUENT

<u>Station</u>	<u>Description</u>
E-001	At any point downstream from the disinfection facilities for the sanitary waste, where all sewage are present and adequate disinfection is assured, and prior to disposal to the designated spray area on the discharger's property. (Formerly defined as Station "S")
E-002	At any point in the outfall for Waste 002 from the retention basins for the industrial non-contact cooling water system, between the point of discharge and the point at which all wastes tributary to that outfall are present. (Formerly defined as Station "B")
E-002NP	At the point in the discharge from storage facilities for the industrial non-contact cooling wastewater which may under any circumstances reach State waters. This storage is separate from the retention basins and is used to facilitate non-potable reclamation use of the wastewater. (Formerly defined as Station "E")
E-003	At any point in the outfall for Waste 003 where all storm water runoff tributary to that outfall are present.

B. RECEIVING WATERS

<u>Station</u>	<u>Description</u>
C-4	Located in the intermittent unnamed stream crossing the southern boundary of the site above the point where effluent from the discharger enters the stream.

C-V Located at a point in Vallecitos Creek or the unnamed ditch tributary to Vallecitos Creek downstream of where all waste discharged from the discharger is present.

II. SCHEDULE OF SAMPLING AND ANALYSIS

- A. The schedule of sampling and analysis shall be that given in Table 1 (attached).
- B. Sample collection, storage, and analyses shall be performed according to requirements in the latest 40 CFR 136, in the Permit, or as specified by the Executive Officer.

III. MODIFICATIONS TO PART A

- A. Exclude paragraphs C.5; and D.3.
- B. Paragraph F.4. is modified as follows:

Written reports shall be filed regularly each calendar quarter and filed no later than the fifteenth day following the end of the quarter. The reports shall comprise of the items listed in Part A paragraph F.4.a. through f.

- C. Section F.5. is modified as follows:

F.5. Annual Reporting

- a. **Process Wastewaters:** By January 30 of each year, the discharger shall submit an annual report to the Regional Board covering the previous calendar year for Waste 001 and Waste 002. The report shall contain:
 - 1) Both tabular and graphical summaries of the monitoring data for all parameters monitored during the previous year.
 - 2) A comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharger requirements.
 - 3) List of Approved Analyses to include:
 - a) a list of analyses for which the discharger is approved by the California Department of Health Services,
 - b) a list of analyses performed for the discharger by another approved laboratory shall also be submitted as part of the report, and
 - c) a list of "waived" analyses, as approved.

b. **Storm Water:** The discharger shall submit an annual report by July 1 of each year covering data for the previous wet weather season for the storm water discharge Waste 003. The annual storm water report shall include:

- 1) a tabulated summary of all sampling results and a summary of visual observations taken during the inspections;
- 2) a comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharger requirements; and
- 3) a comprehensive discussion of the progress and/or success of source identification and control programs for non-effluent limited parameters.

IV. MISCELLANEOUS REPORTING

- A. The discharger shall submit the following quarterly: The location and quantity of the disposal of all sewage sludge removed from the site during the previous quarter.
- B. The discharger shall submit a copy of any routine reports done for the State Department of Health Services or Nuclear Regulatory Commission of the effects of radioactive substances on the discharger's effluent, receiving waters, and groundwaters, on-site or off-site.

I, Loretta K. Barsamian, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Order No. 97-024.
2. Is effective on the date shown below.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer, pursuant to 40 CFR 122.62 and 124.4.



LORETTA K. BARSAMIAN
Executive Officer

Effective Date: April 1, 1997

Attachments:

Table 1 - Schedule of Sampling, Measurement and Analysis

TABLE 1
SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

<u>Station</u>	<u>Constituent</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency of Analysis</u>
E-001	Flow	gallons/day	Continuous	Continuous
	Total Coliform ^[8]	MPN/100 ml	Grab	Twice each month
	pH	standard units	Grab	Twice each month
E-002 and E-002NP ^[4]	Flow	gallons	Each discharge ^[1]	Each discharge ^[1]
	pH	--	Grab	Weekly
	Temperature	deg. F	Grab	Weekly
	Dissolved Oxygen	mg/l and % saturation	Grab	Monthly
	Total Dissolved Solids	mg/l & kg/day	Grab	Monthly
	Chlorides	mg/l & kg/day	Grab	Monthly
	Settleable Solids	ml/l/hr	Grab	Monthly
	Total Suspended Solids	mg/l & kg/day	Grab	Monthly
	Oil & Grease	mg/l & kg/day	Grab	Monthly
	Copper	μg/l & g/day	Grab	Monthly
	Hex. Chromium ^[2]	μg/l & g/day	Grab	Monthly
	Lead	μg/l & g/day	Grab	Monthly
	Mercury	μg/l & g/day	Grab	Annually
	Zinc	μg/l & g/day	Grab	Monthly
	Acute Toxicity 96-hr Bioassay ^[3]	% Survival	Grab	Monthly
	Applicable standard observations	--	--	Monthly
E-003	Flow	Gallons	Each occurrence ^[5]	All constituents twice each wet weather season ^[5]
	pH	--	Grab ^[5]	
	Oil & Grease or Total Organic Carbon	mg/l & kg/day	Grab ^[5]	
	Specific Conductance	μmhos/cm	Grab ^[5]	
	Total Suspended Solids	mg/l & kg/day	Grab ^[5]	Monthly observations ^[5]
	Applicable standard observations	--	--	

TABLE 1
SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

<u>Station</u>	<u>Constituent</u>	<u>Unit</u>	<u>Sample Type</u>	<u>Frequency of Analysis</u>
C Stations	Dissolved Oxygen	mg/l and % saturation	Grab ^[6]	Quarterly ^[6]
	Dissolved sulfide ^[7]	mg/l	Grab ^[6]	Quarterly ^[6]
	pH	--	Grab ^[6]	Quarterly ^[6]
	Un-ionized	mg/l	Grab ^[6]	Quarterly ^[6]
	Ammonia (as N)		Grab ^[6]	Quarterly ^[6]
	Applicable standard observations	--	--	Quarterly ^[6]

Footnotes for Table 1:

1. The volume of each basin discharge shall be recorded. Total volume discharged and the minimum, maximum, and average daily volumes discharged for each month shall be reported.
2. The discharger may at their option analyze for hexavalent chromium as total chromium.
3. Rainbow trout, and Fathead Minnow are to be tested to determine compliance with the acute toxicity effluent limitation. The tests shall be concurrent 96-hour bioassays using both test species with daily renewals in accordance with USEPA Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, 4th edition, EPA/600/4-90/027. Samples shall not be held for more than 48 hours, except if there are days when no discharge occurs during a 96-hour bioassay, then bioassay may be renewed with reserved sample from the most recent discharge. If no reserve sample is available, the bioassay may be completed as a static test or renewed with a sample from the next discharge when it becomes available.
4. Sampling of E-002NP is necessary only when there is non-potable use of the industrial wastewater (Waste 002). The schedule of sampling and analysis for E-002 shall apply to Station E-002NP except for the acute toxicity 96-hr bioassay.
5. The discharge flow rate for storm water discharge (Waste 003) shall be estimated at the time of sample collection. The discharger shall also report the total volume of discharge for each month. The volume may be calculated from an appropriate site runoff coefficient, area of drainage and precipitation records or measurements. Samples are required to be collected twice during each wet weather period (October 1 through April 30) in accordance with Part A Section C.3. of the Self-Monitoring Program. For safety reasons, the discharger may choose to sample only storms occurring during daylight hours. In accordance with those requirements, grab samples are required to be collected during the first 30 minutes of the discharge. The samples may be collected during the first hour of discharge if the discharger explains in the monitoring report why sample in the first

30 minutes was impracticable. Visual observations are required monthly during the wet weather period, and at least twice during the dry weather period.

6. Grab Samples of receiving water stations shall be collected on days coincident with samples collected for the analysis of regulated parameters. Sampling is required only when there is sufficient natural flow in the unnamed ditch or Vallecitos Creek to enable collection of samples.
7. Receiving water analysis for sulfides is necessary when dissolved oxygen is less than 5.0 mg/l.
8. When replicate or duplicate analyses are made of a coliform sample, the reported result shall be the arithmetic mean of the analysis values.